TPS150

TWISTED PAIR A/V SWITCHING AND TRANSMISSION SYSTEM

- Sends video and serial control signals over a single UTP cable
- Four input A/V switcher
- Universal projector control via RS-232
- Red/Green/Blue skew controls
- Individual low frequency and high frequency cable equalization adjustments
- Volume control and mute
- RS-232 serial control
- Contact closure control

TPR150 Receiver

TPT150 Transmitter

The Inline TPS150 is a complete switching and transmission solution for sending video, high resolution computer-video, and RS-232 control signals to a projector, plasma display, presentation monitor, or other data display over a single UTP cable.

DESCRIPTION

The **TPT150 Transmitter** and **TPR150 Receiver** combine to create the **TPS150**, a complete switching and transmission solution for sending video, high resolution computer-video, and RS-232 control signals to a projector, plasma display, presentation monitor, or other data display over a single UTP cable. Featuring advanced cable compensation and skew control technology (patent pending), the TPS150 system provides superb image quality with cable runs up to 500 feet (152 meters) using standard CAT 5 cable.

The TPS150 system includes the following components:

- TPT150 A/V Switcher/Twisted Pair Transmitter
- TPR150 Twisted Pair Video Receiver with Mounting Brackets
- Video Cables for Connection to Remote Projector/Plasma Display:
  - 6' composite video
  - 6' S-video
  - 6' component video
  - 6' VGA cable

Note: The UTP twisted pair cable is not provided with the system and must be ordered separately.

TPT150 A/V Switcher and Twisted Pair Transmitter

The TPT150 combines a four input A/V switcher and twisted pair transmitter in one box. Inputs one and two are for high resolution RGBHV and computer-video on female 15-pin HD connectors; inputs three and four are compatible with composite video, S-video, or component video signals on either female RCAs or a 4-pin mini DIN connector. Audio inputs are on female RCA connectors. Video output to the TPR150 receiver is on a female RJ-45 connector, while audio is output locally on captive screw connectors.

TPR150 Twisted Pair Receiver

The TPR150 accepts the selected video signal and any serial control signals from the TPT150 via a female RJ-45 connector. Output is on 15-pin HD connectors for computer-video signals, female RCA connectors for composite video and component video signals, a 4-pin mini DIN for S-video signals, and a 9-pin D-sub for serial control signals. Mounting brackets are included for mounting the TPR150 to a projector mounting pole (U-bolts are not included).

Recommended UTP Cables for TPS150

CAT 5 UTP cable will provide good results at all lengths up to 500 feet (152 meters). CAT 5e and CAT 6 may also be used for cable lengths up to 250 feet (76.2 meters), however, due to the greater inherent skew in these cables, the TPR150 internal skew compensation controls alone may not be able to adjust for the skew found in CAT 5e or CAT 6 cable runs in excess of 250 feet (76.2 meters). For longer cable runs, Extron skew adjustment cables may be required.

The Extron Skew-Free A/V UTP cable is recommended for excellent results with all cable lengths up to 500 feet (152 meters). This cable offers a unique design that entirely eliminates the pair-to-pair timing differences (skew) found in traditional UTP cables. Plenum and non-plenum versions of Skew-Free A/V UTP are available in bulk rolls or pre-terminated with high quality RJ-45 connectors.

FEATURES

- **Four input A/V switcher** – Accepts and transmits RGBHV, component video, S-video, or composite video.
- **Buffered loop-through (input 1 only)** – Provides for local monitor output on a 15-pin HD female VGA connector, enabling a signal to be easily monitored or distributed without using a distribution amplifier.
- **Audio-follow-video switching** – The TPT150 switcher accepts unbalanced line level audio input signals and outputs the selected signal locally as balanced or unbalanced audio (audio signals are not sent over the CAT 5 cable to the TPR150 and remote display).
- **Universal projector control** – The TPS150 provides universal projector control via serial commands entered by the installing technician. Commands are automatically sent when the input selection or display power buttons are pressed. The included ICS100 control software makes storing projector or display control codes easy.
- **Inactivity timer** – Adjustable timer can automatically shut down a display device to preserve energy, prevent plasma burn-in, and extended projector lamp life.
- **Skew compensation controls** – Individual RGB skew controls adjust for the timing delays commonly encountered when CAT 5, 5e, or 6 cable is used.
- **Cable equalization controls** – Provide video equalization with individual low and high frequency adjustments. The low frequency control boosts low frequencies to remove image smearing; the high frequency control adjusts the high frequency components, restoring image sharpness and detail.
- **Volume control and mute** – Volume control and mute can be controlled locally from the TPT150 front panel or remotely using RS-232 serial or contact closure port. Unique volume levels are saved for each input and automatically recalled each time that input is selected.
- **Control** – Switcher control is available through front panel buttons, contact closure, or RS-232 serial commands. Serial control is provided with the ICS100 Inline control software and/or a third party control system.
- **Internal international power supply** – The 100-240 volt, autoswitchable, internal, international power supply provides worldwide power compatibility.
- **CTP150CM control panel (optional)** – Seven soft-touch buttons control input selection, volume up/down, and display power on/off. The CTP150CM is available in a black or white finish and installs in the CPM Series modular connector panels and other products that accept a quad-size Mini Architectural Adapter Plate (MAAP).

Optional CTP150CM Control Panel

VIDEO

Number/signal type	1 set of proprietary analog signals
Connectors	1 RJ-45 female jack

VIDEO INPUT

Number/signal type	
TPT150	1 VGA-UXGA RGBHV, RGBS, RGsB with 1 RGB buffered local monitor loop-through 1 VGA-UXGA RGBHV, RGBS, RGsB 2 component video (Y, R-Y, B-Y), or S-video, or composite video
TPR150	1 set of proprietary analog signals from a TPT150
Connectors	
TPT 150	2 female 15-pin HD (RGB input) 1 female 15-pin HD (RGB loop-through) 2 sets of [3 female RCA (component video), 1 female RCA (composite), 1 female 4-pin mini DIN (S-video)]
TPR150	1 RJ-45 female jack
Nominal level	1V p-p for Y of component video and S-video, and for composite video 0.7V p-p for RGB 0.3V p-p for R-Y and B-Y of component video, and for C of S-video
Minimum/maximum levels	Analog: 0.3V to 1.5V p-p no offset at unity gain
Impedance	75 ohms
Return loss	<-44dB @ 5 MHz
Maximum DC offset	±0.5mV

VIDEO OUTPUT

Number/signal type	
TPT150	1 set of proprietary analog signals
TPR150	1 RGBHV, RGBS, RGsB 1 component video (Y, R-Y, B-Y) 1 S-video 1 composite video
Connectors	
TPT150	1 RJ-45 female jack
TPR150	1 female 15-pin HD (RGB) 3 RCA female (component video) (1) 4-pin mini DIN (S-video) 1 RCA female (composite video)
Nominal level	1V p-p for Y of component video and S-video, and for composite video 0.7V p-p for RGB 0.3V p-p for R-Y and B-Y of component video, and for C of S-video
Minimum/maximum levels	0.3V to 1.5V p-p
Impedance	75 ohms
Return loss	-44dB @ 5 MHz
DC offset	±0.5mV maximum with input at 0 offset

SYNC

Input type	RGBHV, RGBS, RGsB
Output type	RGBHV, RGBS, RGsB
Standards	NTSC 3.58, NTSC 4.43, PAL, SECAM
Input level	10 kohms
Output level	2.3V to 4.6V p-p, unterminated
Input impedance	510 ohms
Output impedance	75 ohms
Max. input voltage	4.6V p-p
Max. propagation delay	760 ns
Max. rise/fall time	35 ns
Polarity	Positive or negative

AUDIO — TPT150 ONLY

Gain	-30dB to +9dB, adjustable
Frequency response	20 Hz to 20 kHz, +0dB/-2.5dB
THD + Noise	0.04% @ 1 kHz at nominal level
S/N	>-96dB at rated maximum output
Crosstalk	<-93dB @ 20 kHz, fully loaded
Number/signal type	4 stereo, unbal.
Connectors	4 pairs of RCA connectors
Impedance	>7.8 kohms unbal., DC coupled
Nominal level	2.2dBu (1Vrms)
Maximum level	+9.8dBu, (unbal.) at 1%THD+N

AUDIO OUTPUT — TPT150 ONLY

Number/signal type	1 stereo, bal./unbal.
Connectors	(1) 3.5 mm captive screw connector, 5 pole
Impedance	51 ohms unbal.
Gain error	±0.03dB channel to channel
Maximum level (Hi-Z)	>+10.2dBu, bal. or unbal. at stated %THD+N
Maximum level (600 ohm)	>+4.2dBm, bal. or unbal. at stated %THD+N

NOTE: 0dBu = 0.775 volts (RMS).

CONTROL

Serial control port	RS-232, 9-pin female D connector
Serial control pin configurations	2 = TX, 3 = RX, 5 = GND
Contact closure (TPT only)	(1) 3.5 mm captive screw connector, 8 pole
Contact closure pin configurations (TPT only)	1 = input 1, 2 = input 2, 3 = input 3, 4 = input 4, 8 = GND
Extron remote key pad control (TPT only)	(1) 3.5 mm captive screw connector, 4 pole (shared with contac closure port) for a CTP150CM control panel
Program control	ICS100 (Inline Control Software)
Projector control port	1 male 9-pin D

GENERAL

Power	100VAC to 240VAC, 50/60 Hz, internal, autoswitchable TPT150: 15 watts, TPR150: 10 watts
Rack mount	
TPT150	Yes, with included brackets, part #MTR102
TPR150	No, but projector pole mountable with included L brackets
Enclosure type	Metal
Enclosure dimensions	
TPT 150	1.75" H x 17.0" W x 11.5" D (1U high) 4.3 cm H x 43.2 cm W x 29.2 cm D
TPR150	1.65" H x 11.75" W x 6.0" D (1U high) 4.3 cm H x 29.8 cm W x 15.2 cm D
Product weight	
TPT150	5.2 lbs (2.4 kg)
TPR150	2.2 lbs (1.0 kg)
Shipping weight	13 lbs (6 kg)
DIM weight	
USA/Canada	11 lbs (5 kg)
International	12 lbs (6 kg)
Listings	ETL (UL1950)
Compliances	CE, FCC Class A

Model	Part Numbers
TPS150	TPS150-1

Included Components and Accessories

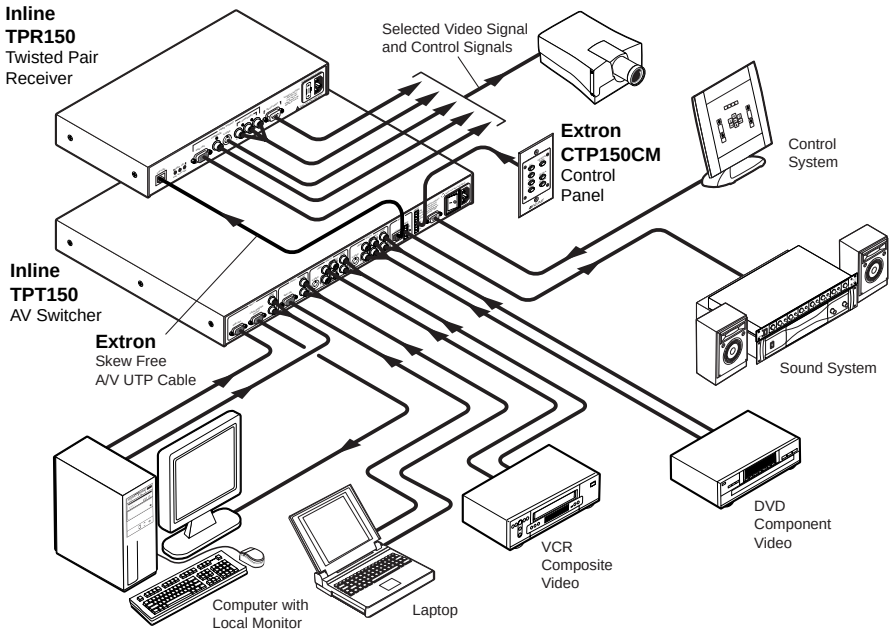
6' S-Video Cable (4-pin mini DIN m-m)	IN8606
6' Composite Video Cable (RCA m-m)	IN9095
6' YUV Cable (3 RCA m-m)	IN9270
6' VGA Cable (15-pin HD m-m)	IN8006M-1
TPT150 Transmitter	TPT150
TPR150 Receiver	TPR150
MTR102 Rack Mount Ears	MTR102
6' IEC power cord	IN9230

Optional Accessories

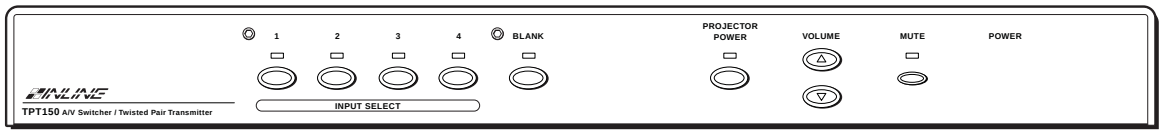
Control Panel for TPS150 (black)	CTP150CM-1
Control Panel for TPS150 (white)	CTP150CM-2
Skew-Free A/V UTP	26-569-XX
Plenum Skew-Free A/V UTP pre-cut	26-570-XX
Skew-Free A/V UTP 1,000' (304.8 m) spool	22-141-03
Plenum Skew-Free A/V UTP 1,000' (304.8 m) spool	22-142-03

Specifications are subject to change without notice.

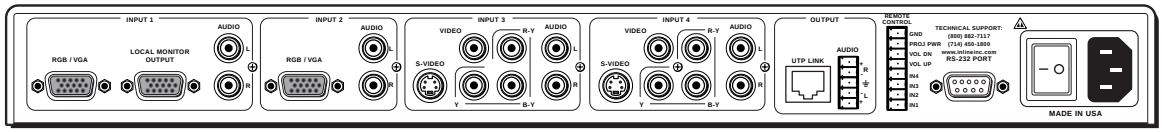
Application Diagram



Panel Drawings

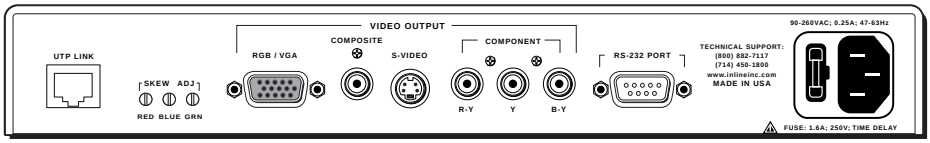


TPT150 Transmitter Front



TPT150 Transmitter Back

TPR150 Receiver Front



TPR150 Receiver Back

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